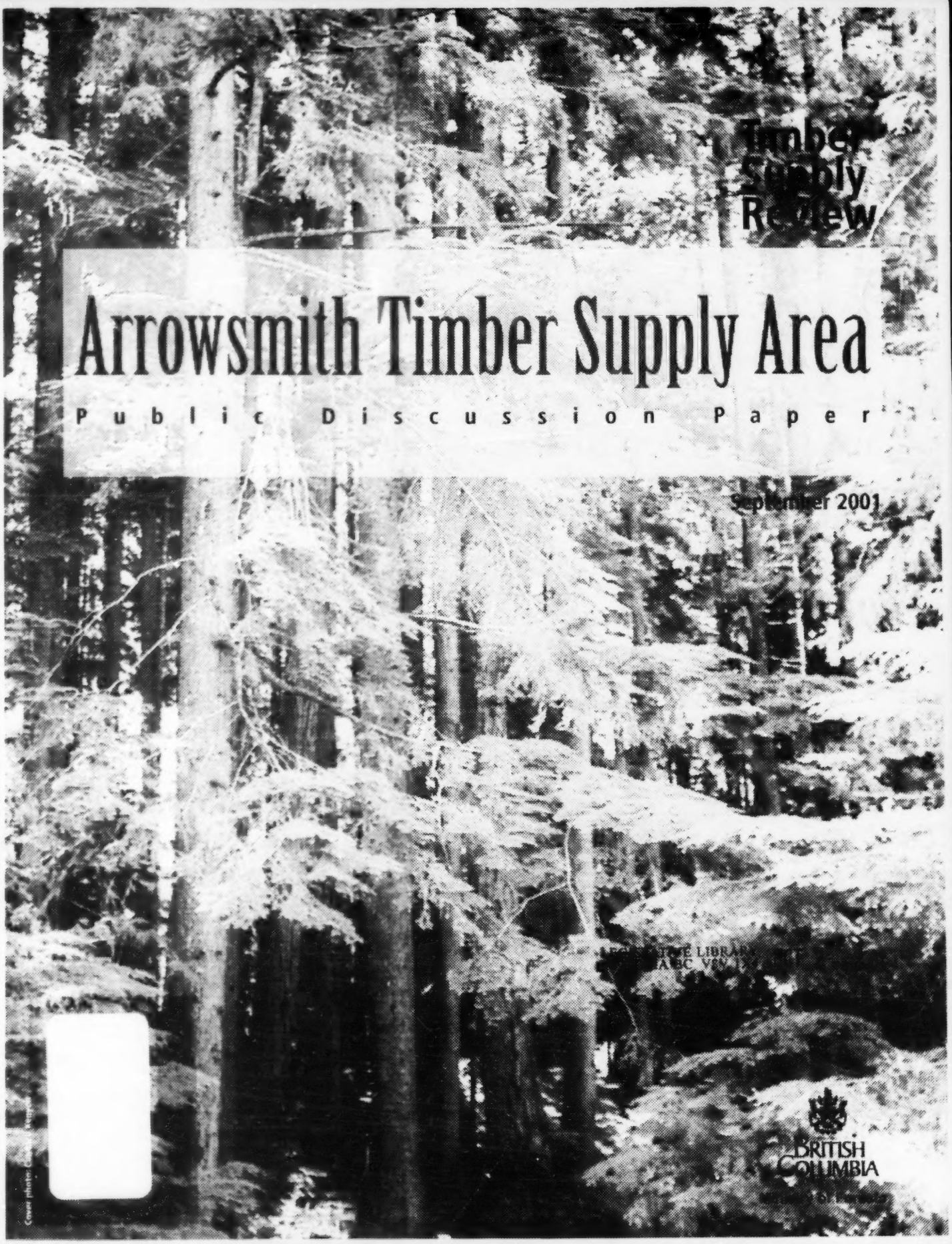

Arrowsmith Timber Supply Area

Public Discussion Paper

September 2001

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Introduction

The British Columbia Forest Service reviews the timber supply* for all timber supply areas* (TSAs) and tree farm licences* (TFLs) in the province at least once every five years. This review examines the impacts of current forest management practices on the timber supply, economy, environment and social conditions of the local area and the province. Based on this review, the chief forester will determine the allowable annual cut (AAC) for the Arrowsmith TSA.

The Timber Supply Review examines:
Relevant current forest management practices, public input, and economic, environmental and social factors.

Outcomes are:

- A new AAC for the next five years.
- A list of the information to be improved for future timber supply forecasts.

Timber Supply Review in the Arrowsmith TSA

The British Columbia Forest Service has now completed the *2001 Arrowsmith TSA Analysis Report*, which is summarized in this discussion paper. This discussion paper is intended to provide British Columbians with an overview of the Timber Supply Review process and harvest level forecasts for the Arrowsmith TSA, and to encourage them to provide comments during the 45-day public review period. **Public comments will be accepted until Nov. 13, 2001.**

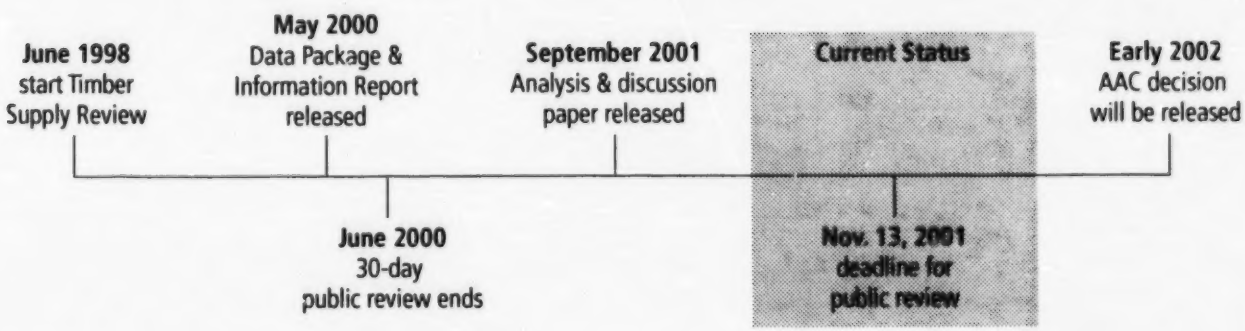
Before setting a new AAC, the chief forester will review all relevant reports and public input. The chief forester's determination will be outlined in a rationale statement which, along with the summary of public input, will be available to the public upon release. Following the release of the AAC determination by the chief forester, the minister of forests will apportion the AAC to the various licences and programs.

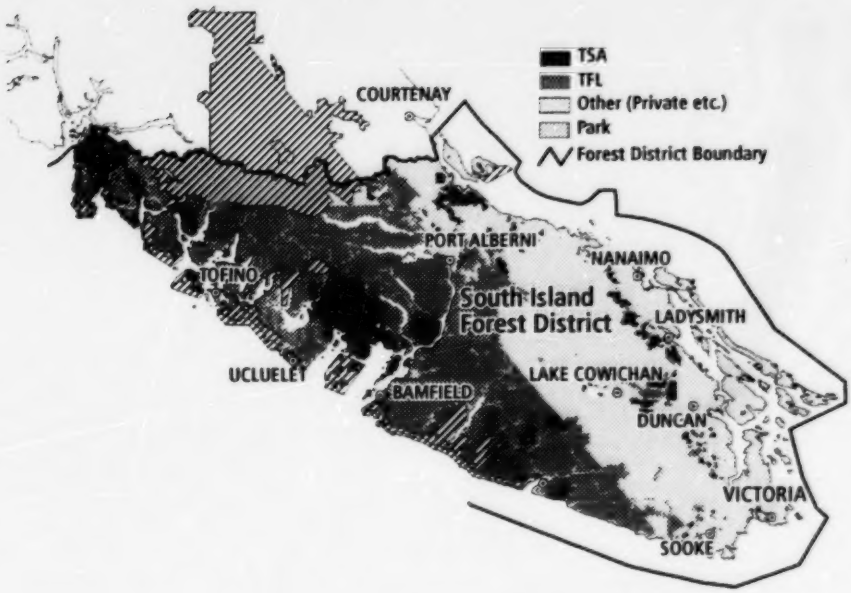
* **Timber supply** – the amount of timber that is forecast to be available for harvesting over a specified time period, under a particular management regime.

* **TSA** – an integrated resource management unit established in accordance with Section 7 of the Forest Act.

* **TFL** – provides rights to harvest timber, and outlines responsibilities for forest management, in a particular area.

Review Process for the Arrowsmith TSA





Description of the TSA

The Arrowsmith TSA is located on the southern half of Vancouver Island and consists of several fragmented areas located within the South Island Forest District. This TSA is one of eight in the Vancouver Forest Region, and has an an area of approximately 169,000 hectares. The TSA is administered by the forest district office in Port Alberni. Compared to the surrounding TFL lands, which include TFL 25, 44, 46 and 57, the TSA provides a comparatively small, albeit important, component of the timber harvest on the southern part of Vancouver Island.

In 2000, the population in the South Island Forest District was approximately 557,900 people. About 60 per cent of the people reside within the Capitol Regional District, including the City of Victoria. Other major population centres are Duncan, Ladysmith, Nanaimo, Parksville, Qualicum Beach and Port Alberni, and smaller communities include Tofino, Ucluelet, Lake Cowichan, Nanoose, Chemainus, Union Bay and Fanny Bay. Population density in this TSA is particularly high along the east coast of Vancouver Island, and is expected to continue growing at a strong rate.

First Nations

Twenty-six First Nations with reserves or traditional territories are located within the Arrowsmith TSA. All but three First Nations are represented by the following four tribal councils and two treaty associations: the Alliance Tribal Council; the First Nation South Island Tribal Council; the Mid-Island Tribal Council; the Nuu-chah-nulth Tribal Council; the Hul'qumi'nun Treaty Group; and the Te'Mexw Treaty Association. Some of these First Nations have entered into land claims negotiations under the British Columbia Treaty Process.

First Nations are becoming more active in the management of public forest lands and timber harvesting in their traditional territories. For example, in March 1994, a two-year Interim Measures Agreement was signed between the provincial government and hereditary chiefs of the Nuu-chah-nulth Central Region Tribes. The agreement established the Clayoquot Sound Central Region Board, which is a joint management process between First Nations and provincial government appointees to oversee development in Clayoquot Sound, including implementation of the Clayoquot Sound Land-Use Decision and the recommendations of the Scientific Panel. In March 2000, a new five-year extension agreement was signed.

The natural resources

Numerous natural resources are associated with the forest land base in the Arrowsmith TSA, such as forest products (timber and non-timber), recreation and tourism amenities, and fish and wildlife habitats.

As Figure 1 shows, about 56 per cent (112,050 hectares) of the Arrowsmith TSA is considered Crown-owned forest land managed by the British Columbia Forest Service. Currently, about 54 per cent of this forested land (about 30 per cent of the total TSA land base) is considered available for timber harvesting—the timber harvesting land base*.

All current forest management follows the standards set out by the Forest Practices Code. The Code is designed to ensure good forest management of all forest

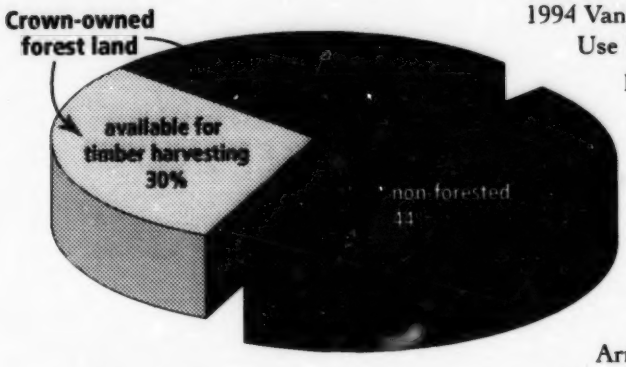


Figure 1. Area breakdown for the Arrowsmith TSA, 2001

values, including maintaining a range of biodiversity and wildlife values. More than one-quarter of the Arrowsmith TSA is productive forest land that is not considered available for timber harvesting, and provides for many environmental values. As well, parks in the surrounding area contribute to protecting wildlife habitat and biodiversity. This timber supply analysis accounts for management requirements for biodiversity; scenic areas; watersheds; deer winter range; recreation features; streams, lakes and wetlands; and unstable terrain.

Land use planning

In April 1993, the provincial government announced the Clayoquot Sound Land-Use Decision. The area is about 262,000 hectares, including portions of the Arrowsmith TSA. This decision increased protected areas and also established special management areas and general integrated management areas. The protected areas have now been formally designated and those located in the Arrowsmith TSA will be removed from the timber harvesting land base.

In addition, as a result of the 1994 Vancouver Island Land-Use Plan, more than 46 new parks were created and 81 per cent of Crown lands and private, managed forest lands have been established as part of the Forest Land Reserve*. New protected areas within the Arrowsmith TSA include the Bowser Ecological Reserve, the Ladysmith Bog Ecological Reserve, and Stamp River/Money's Pool Provincial Park. As these areas have now been formally designated, they are not included in the timber harvesting land base. This timber supply review also reflects land-use planning decisions (regarding forest practices) that have been implemented.

* **Timber harvesting land base** – Crown forest land within the timber supply area where timber harvesting is considered both acceptable and economically feasible.

* **Forest land reserve** – land designated under the Forest Land Reserve Act for uses that include timber production, recreation and habitat.

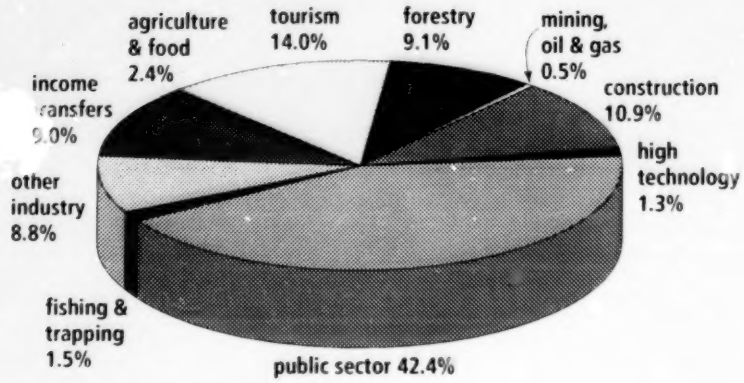


Figure 2. South Island Forest District experienced labour force by sector, 1996.

Socio-economic profile

Regional economy

The forest industry in the Arrowsmith TSA is an important source of employment and income for local residents. As Figure 2 shows, forestry is the fourth-largest contributor to employment, with 9.1 per cent of the total labour force. The public sector is the leading employer, supporting about 42 per cent of the total labour force. Tourism is the second-largest employer with 14 per cent of the total labour force, while construction is third with nearly 11 per cent.

The forest sector supports numerous other jobs in the area as a result of companies and employees purchasing goods and services from local businesses. Each 100 full-time direct forestry jobs in the Arrowsmith TSA are estimated to support another 57 to 104 jobs, depending on the forestry activity (harvesting or timber processing). In comparison, 100 direct jobs in the tourism and business travel sector support another 19 jobs, and in the public sector another 38 jobs.

Table 2 illustrates the potential contribution of the forest industry associated with the Arrowsmith TSA timber harvest to both the regional and provincial economies. Figures in this table are based on

Current allowable annual cut

Following the last timber supply review, the chief forester set the AAC in the Arrowsmith TSA at 400,000 cubic metres, effective Dec. 30, 1996. This level represented a decrease of 17 per cent from the previous AAC and was partitioned* as follows:

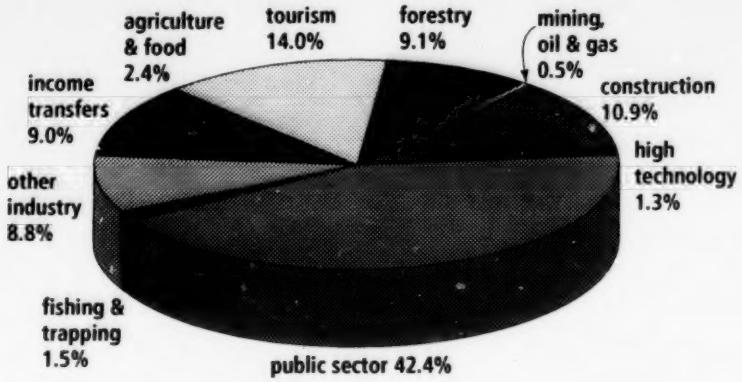
- 380,000 cubic metres for the area outside the Clayoquot Sound Land-Use Decision
- 13,700 cubic metres for the area within the Clayoquot Sound Land-Use Decision
- 6,300 cubic metres for alder stands.

* **Partition** – A portion of the AAC that is attributable to certain types of timber and/or terrain.

Forest Industry economic contribution

	TSA	Provincial
Direct employment (person years)	200	288
Total employment (person years)	330	640
Total employment income ($1999 millions per year)	13.5	24.6
Provincial government revenues ($1999 millions per year)	n.a.	12.4

Table 2. Summary of local and provincial economic information associated with the average 1998-2000 annual harvest—Arrowsmith TSA, 2001.



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the average 1998-2000 Arrowsmith TSA harvest of 290,031 cubic metres per year.

Timber supply forecasts

A timber supply computer model was used to project several possible timber supply forecasts for the next 250 years. The base case forecast illustrates the effect of current forest management practices on timber supply, using the best available information. The base case is not a recommendation for an AAC, but rather is one of many sources of information the chief forester will consider when setting the AAC.

As Figure 3 shows, the base case harvest forecast for the Arrowsmith TSA indicates an initial harvest level of 357,000 cubic metres per year—about 11 per cent lower than the current AAC. After one decade, the harvest level declines by 11 per cent per decade so that by the fourth decade from now it reaches 263,000 cubic metres per year. After seven decades the harvest increases by nine per cent to the long-term harvest level of 286,250 cubic metres per year. The initial base case forecast has three components:

- 6,300 cubic metres per year for harvesting alder forests for the next 10 years;
- 11,000 cubic metres per year within Clayoquot Sound (the current level is 13,700 cubic metres); and
- 339,700 cubic metres per year from coniferous* forests outside Clayoquot Sound (the current level is 380,000 cubic metres).

Several changes have occurred since the 1995 timber supply analysis that affect the base case timber supply forecast. The net effect of these changes is a 12 per cent decrease in the size of the timber harvesting land base. These changes include:

- implementation of the Forest Practices Code, which increased areas set aside for riparian* reserves and wildlife tree patches, and limited availability of timber for harvesting in order to meet biodiversity requirements;
- new woodlots, community forests, land exchanges for compensation, in addition to the creation of several parks as a result of the Vancouver Island Summary Land Use Plan; and
- adjustments to account for fragmented parcels of Crown land that are difficult to access and harvest.

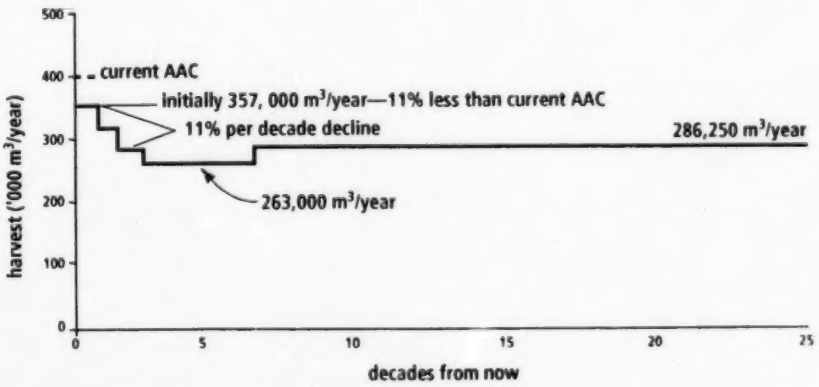
Sensitivity analyses: examining uncertainty

Because forests and forest management are complex and constantly changing, timber supply analysts assess how timber supply might be affected by uncertainties in inventory information and management practices. These uncertainties are generally examined through what are called sensitivity analyses, which the chief forester will

*Coniferous–Coniferous trees have needles or scale-like leaves and are usually 'evergreen'.

*Riparian–areas of land adjacent to wetlands or bodies of water, such as swamps, streams, rivers or lakes.

Figure 3. Base case timber supply forecast,—Arrowsmith TSA, 2001



consider in determining an AAC. The sensitivity analyses are useful for assessing how any changes in information or uncertainties and risks might affect timber supply.

Some key sensitivity analyses for the Arrowsmith TSA are described below. For a complete listing of sensitivity analyses, please refer to the 2001 Arrowsmith TSA Analysis Report.

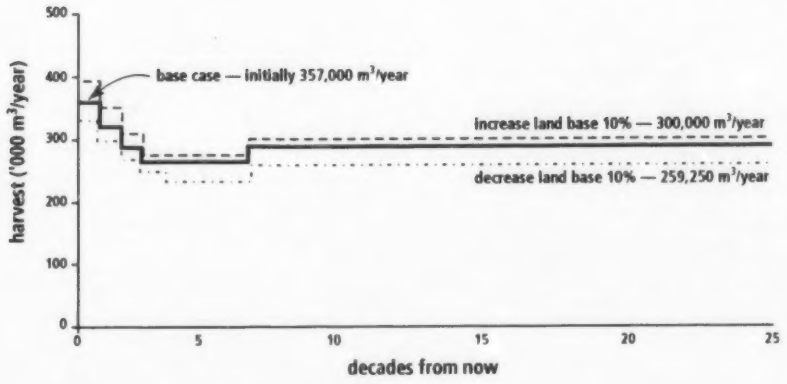


Figure 4. Uncertainty about the size of the land base available for harvesting—Arrowsmith TSA, 2001

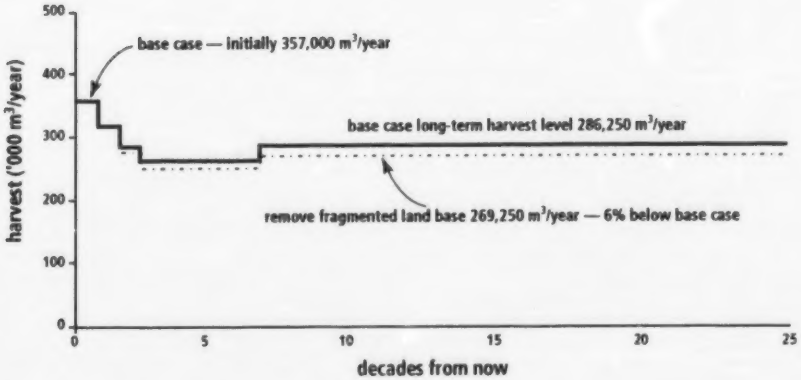


Figure 5. The effect of removing fragmented areas from the timber harvesting land base—Arrowsmith TSA, 2001

Uncertainty about the size of the land base available for harvesting

Uncertainty about the estimated size of the timber harvesting land base is due to factors such as land-use decisions, fluctuations in timber prices, changes in the definition of unmerchantable species, and changes in harvesting, such as the recent trend to variable retention. The timber harvesting land base in the Arrowsmith TSA has decreased by 12 per cent since the last timber supply analysis. While the land base was reduced for factors such as parks, protected areas, woodlots, community forests and land exchanges, it has also increased due to the inclusion of alder stands.

The timber harvesting land base sensitivity analyses were performed to provide information to help evaluate the implications to timber supply of any new information that becomes available before the AAC determination.

As Figure 4 indicates, if the timber harvesting land base is 10 per cent smaller than in the base case, the initial forecasted harvest level may be eight per cent lower than in the base case. If the timber harvesting land base is 10 per cent larger, the initial harvest level may be 11 per cent higher than in the base case.

Fragmentation of the timber harvesting land base

In the Arrowsmith TSA, many small parcels of Crown land on the east coast of Vancouver Island are surrounded by private land or are adjacent to communities, making conventional access for timber harvesting difficult. Nearly nine per cent of the land available for timber

harvesting is fragmented in this way. In the base case forecast, these fragmented areas are harvested at a slower rate.

As Figure 5 indicates, if the fragmented areas are removed from harvesting, the harvest level follows the base case forecast for 20 years, then declines to mid- and long-term levels about six per cent lower than the base case forecast.

Uncertainty about the impacts of retention harvesting

A number of companies in the Arrowsmith TSA, along with the Small Business Forest Enterprise Program, have started to use variable retention harvesting*. Variable retention harvesting is characterized by smaller harvest openings where some trees are retained in groups within the openings or dispersed as individual trees throughout the openings, to help meet objectives for biodiversity, wildlife habitat and scenic values. The retention of trees has an impact on the volume of timber harvested, and on the volume of future stands.

Based on information from a recent review of variable retention harvesting practices within the Arrowsmith TSA, timber volumes in the base case forecast were reduced by approximately 4.25 per cent to account for variable retention harvesting. However, there is some uncertainty about the volume of trees that may be retained. As Figure 6 indicates, if the timber volume retained was increased to 8.5 per cent, the initial base case harvest level may decline by three per cent. If the timber volume retained was reduced to 2.1 per cent, the initial base case harvest level could increase by four per cent.

Community implications of changes in the AAC

The implication of changes in the AAC for local communities is an important consideration in the Timber Supply Review. The Arrowsmith TSA is a large and diverse region comprised of a number of areas with very different economic dependencies. Given this wide-ranging economic structure, the base case harvest forecast is not expected to substantially impact the region's economic stability.

Compared to the current AAC, an initial harvest forecast of 357,000 cubic metres per year, if fully harvested and processed, would result in a reduction of about 40 direct person-years of work across the province.

* **Variable retention harvesting**– a harvesting method that uses examples from nature as models for retaining part of the forest.

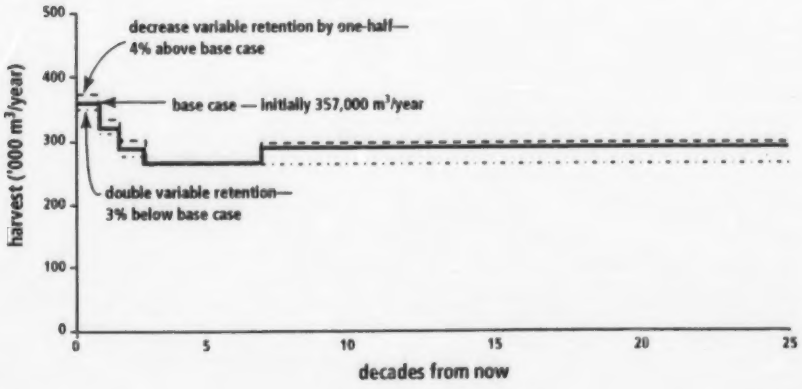


Figure 6. Uncertainty about variable retention harvesting practices—Arrowsmith TSA, 2001

However, the actual 1998-2000 harvest rate was approximately 290,000 cubic metres per year, or about 19 per cent lower than the initial harvest forecast in the base case. Given the actual average harvest rate over the last three years, the impact on the region's economy may not be as significant as projected.

Your input is needed

Establishing the AAC is an important decision that requires informed and thoughtful public input. Feedback is welcomed on any aspect of this discussion paper, the 2001 Arrowsmith TSA Analysis Report and other issues related to the timber supply in the Arrowsmith TSA. Forest Service staff would be pleased to answer questions or discuss concerns that would help you prepare your response. Please send your comments to the forest district manager at the address below. Your comments will be accepted until Nov.13, 2001.

You may identify yourself on the response if you wish. If you do, you are reminded that responses will be subject to the Freedom of Information and Protection of Privacy Act and may be made public. If the responses are made public, personal identifiers will be removed before the responses are released.

A summary of public comments will be attached to the AAC rationale and will be available from the district office when the chief forester's AAC determination is announced.

For more information contact and/or mail your comments to:

District Manager
BC Forest Service
South Island Forest District
4885 Cherry Creek Road
Port Alberni, BC V9Y 8E9

Phone: 250 731-3000,
Fax: 250 731-3010

Or electronically mail to
Dan.Biggs@gems1.gov.bc.ca

Visit our Web site at
www.for.gov.bc.ca/tsb

Background Information Regarding TSR

The Chief Forester's Responsibility

Determining the AACs for public forest lands in British Columbia is the responsibility of the province's chief forester. In this lengthy and complex process, the chief forester considers technical reports, analyses and public input, as well as government's social and economic objectives.

This responsibility is required by legislation in the Forest Act, Section 8. It states that the chief forester shall specifically consider the following factors:

1. The rate of timber production that may be sustained from the area, taking into account:
   - the composition of the forest and its expected rate of growth
   - the time that it will take the forest to become re-established
   - silviculture treatments, including reforestation
   - standards of timber utilization
   - constraints on the amount of timber that may be produced due to use of the forest for other purposes.
2. The short- and long-term implications to the province of alternative rates of timber harvesting from the area.
3. The nature, production capabilities and timber requirements of established and proposed processing facilities.
4. The economic and social objectives of the Crown for the area, region and province—as expressed by the minister of forests.
5. Abnormal insect or disease infestations, and major salvage programs planned for the timber on the area.

Some of these factors can be readily measured and analyzed—others cannot. Ultimately, the chief forester's determination is an independent professional judgment based on the best available information. By law, the chief forester is independent of the political process, and is not directed by the minister of forests when determining AACs. In these determinations, the chief forester considers relevant information from all sources.

Why the current AAC may be higher than the long-term harvest level.

Some concern has been expressed that the AACs are higher than the long-term harvest level. There are two main factors which explain this difference:

- In the short term, harvesting takes place in older forests which have accumulated high timber volumes by growing for a long time. Future harvesting on the same sites will take place in second-growth forests at younger ages, yielding lower volumes per hectare.
- Where the long-term harvest level is significantly below the current AAC, the chief forester's strategy is to phase in the lower level over several determinations to allow communities which rely on the forest sector to avoid sudden economic disruptions and to plan for the future—provided the long-term harvest level is not jeopardized.